

## List Of Contents

Title	Page
Dedication.....	
..... ii	
ACKNOWLEDGEMENT.....	
.....iii	
ABSTRACT.....	
.....iv	
ABSTRACT(ARABIC)	
.....v	
1                  CHAPTER ONE: INTRODUCTION.....	
.....1	
2                  CHAPTER TWO: LITERATURE	
REVIEW.....4	
2-1 Medical Importance of Vegetables.....4	
2-2 The Leading Vegetables in Sudan ..... 5	
2-2-1 Potato.....5	
2-2-2 Tomato.....8	
2-3 Physical Injury..... 11	
2-3-1 The Histological Mechanism ..... 14	
2-3-2 Potato Curing .....15	
2-3-3 Water Loss (Transpiration) .....16	
2-3-4 Protection From Water Loss.....21	
2-3-5 Respiration.....22	
2-3-6 Ethylene Production..... 24	

2-3-7 Pathological Breakdown .....	25
2-3-8 Protection from Injuries.....	26
3- Chapter Three: Materials and Methods.....	28
4- Chapter Four: Results and Discussion .....	31
5-Chapter Five: Conclusions.....	43
References.....	45

## **DEDICATION**

*To my parents*

*To my brothers and sisters*

*To all my friends and teachers*

*With love*

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I am thankful to Allah Almighty for the endowments I have been enjoying, especially the health and strength he gave me throughout the course of my study.

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## **Abstract**

About 90 – 95% of most horticultural crops weights is water. Hence they are subjected to physical injury during harvest and handling. This leads to an increase in water loss, respiration and ethylene production rates and to some physiological disorders and diseases. Hence this research was carried out in the nutrition laboratory, College of Agricultural Studies, Sudan University of Science and Technology, to study the extent and pattern of potato tubers and tomato fruits weight loss as a result of removing 10%, 25%,50% and 75% of their volume. The results indicated that there was a significant difference between the control ( intact tubers and fruits ) and the other treatments and among treatments. The control lost less weight, whereas the weight loss in the other treatment increased with the increase of the removed volume.

This study, also included a comparison in dry weights of cut tomato fruits which were air-dried slowly and those which were oven-dried immediately after cutting. The results indicated that the earlier treatment lead to a higher loss in dry weight due to cell respiration. Accordingly, probably it is better to use a higher drying rate method lest to lose much of fruits dry weight.

## **ملخص الرسالة**

## الفقد في وزن درنات البطاطس وثمار الطماطم استجابة للقطع والتجفيف

تحتوي معظم الحاصلات البستانية على نسبة عالية من الماء تتراوح ما بين 90 - 95% من وزنها، لذا فإنها تتعرض للتجريح والخدش أثناء الحصاد والتداول والتعبئة والترحيل مما يؤدي إلى ارتفاع معدل فقد الماء والتنفس وإنتاج غاز الإيثيلين وبعض الأضرار الفسيولوجية والإصابات المرضية . لذا اجري هذا البحث بمختبر الأغذية بكلية الدراسات الزراعية بجامعة السودان لدراسة معدل فقد الوزن في درنات البطاطس وثمار الطماطم بعد معاملتها بإزالة 10% ، 25% ، 50% ، 75% من حجمها . أوضحت النتائج أن هنالك فرق معنوي بين معاملة المقارنة والمعاملات الأخرى وبين كل معاملة والمعاملة التي أزيل منها جزء أكبر. فقدت معاملة المقارنة نسبة أقل بينما إزداد فقد وزن المعاملات الأخرى بإزدياد حجم الجزء الذي أزيل ، كما أن هنالك تناقص في الوزن بمرور الوقت في كل المعاملات.

كذلك تضمنت الدراسة مقارنة الفقد في الوزن الجاف بين ثمار الطماطم المقطعة والمجففة هوائياً وبيطء ، والثمار التي جففت سريعاً عن طريق المجفف الحراري . حيث أوضحت النتائج أن تجفيف الثمار عند درجة حرارة الغرفة ( المجففة هوائياً ) وبيطء أدى إلى فقد أكبر في الوزن الجاف نتيجة التنفس الخلوي . لذا فإنه ربما يكون من الأفضل استخدام طريقة تجفف فيها الثمار بمعدل أسرع بحيث لا تفقد كثير من وزنها الجاف .

**Sudan University of Science & Technology**

**College of Graduate Studies**

**Weight Loss of Potato Tubers and Tomato Fruits Due to  
Cutting and Drying**

فقدان وزن درنات البطاطس وثمار الطماطم نتيجة للقطع  
والتجفيف

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